

TYPE OR PRINT
IN BLACK INK
(For instructions, see
booklet: "How to File an
Application to Appropriate
Water in California")



California Environmental Protection Agency

State Water Resources Control Board
Division of Water Rights
P.O. Box 2000, Sacramento, CA 95812-2000
Tel: (916) 341-5300 Fax: (916) 341-5400
www.waterrights.ca.gov

STATE WATER RESOURCES
CONTROL BOARD
2006 APR 28 AM 11:45
DIVISION OF WATER RIGHTS
SACRAMENTO

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524-06
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APPLICATION NO. 1629

(leave blank)

APPLICATION TO APPROPRIATE WATER

SECTION A: NOTICE INFORMATION

1. APPLICANT/AGENT

	APPLICANT	ASSIGNED AGENT (if any)
Name	BRENT & ELIZABETH NELSON	
Mailing Address	65 IDORA AVENUE	
City, State & Zip	SAN FRANCISCO, CA 94127	
Telephone	415.731.9742	
Fax	415.731.9743	
E-mail	BRENT.NELSON@SBCGLOBAL.NET	

2. OWNERSHIP INFORMATION (Please check type of ownership.)

- ☐ Sole Owner ☐ Limited Liability Company (LLC) ☐ General Partnership*
☐ Limited Partnership* ☐ Business Trust ☒ Husband/Wife Co-Ownership
☐ Corporation ☐ Joint Venture ☐ Other _____

*Please provide a copy of your partnership agreement.

3. PROJECT DESCRIPTION (Provide a detailed description of your project, including, but not limited to, type of construction activity, area to be graded or excavated, and how the water will be used.)

THERE ARE TWO EXISTING RESERVOIRS ON THE PROPERTY DATING PRIOR TO 1980. #1 BEING 0.2 ACRES ACTS AS A SILT POND FOR SURFACE RUNOFF THEN OVERFLOWS DOWN INTO #2. #2 IS 1.1 ACRES AND PROVIDES STORED WATER YEAR ROUND & IS FED BY AN UNDERGROUND SPRING. #2 SUPPLIES THE DOMESTIC USE FOR THE EXISTING HOUSE AND WILL BE THE SUPPLY FOR FUTURE VINEYARD ON THE PROPERTY OF APPROX. 9 ACRES. OVERFLOW GOES TO SEASONAL STREAM.

* For continuation, see Attachment No. 1

4. PURPOSE OF USE, DIVERSION/STORAGE AMOUNT AND SEASON

a. PURPOSE OF USE (irrigation, domestic, etc.)	DIRECT DIVERSION				STORAGE		
	AMOUNT		SEASON OF DIVERSION		AMOUNT	SEASON OF COLLECTION	
	Rate (cfs or gpd)*	Acre-feet per annum	Beginning date (month & day)	Ending date (month & day)	Acre-feet per annum	Beginning date (month & day)	Ending date (month & day)
EXISTING DOMESTIC USE	7.50	4.40	10/15	4/15	1.40	OCT. 15	MAY 15
FUTURE IRRIGATION USE		11.55			11.55	OCT. 15	MAY 15
Total afa =		15.95			12.95		

☐ See Attachment No. _____

* If rate is less than 0.025 cubic feet per second (cfs), use gallons per day (gpd).

- b. Total combined amount taken by direct diversion and storage during any one year will be 12.95 acre-feet.
c. Reservoir storage is: ☒ onstream ☐ offstream ☐ underground (If underground storage, attach Form APP-UGSTOR.)
d. County in which diversion is located: SONOMA County in which water will be used: SONOMA

5. SOURCES AND POINTS OF DIVERSION/REDIVERSION

- a. Sources and Points of Diversion (POD)/Points of Rediversion (PORD):

☒ POD / ☐ PORD # 1: N 377, 744' E 1714.592' (695) tributary to UNNAMED SEASONAL STREAM
thence _____

☒ POD / ☐ PORD # 2: N 377, 517' E 1715.292' (695) tributary to UNNAMED SEASONAL STREAM
thence TRIB TO BARRELLI CREEK THENCE RUSSIAN RIVER. (BR)

☐ POD / ☐ PORD # _____ tributary to _____

thence _____

☐ POD / ☐ PORD # _____ tributary to _____

thence _____

☒ See Attachment No. 1

b. State Planar and Public Land Survey Coordinate Description:

POD/ POD #	CALIFORNIA COORDINATES (NAD-27)	ZONE	POINT IS WITHIN (40-acre subdivision)	SECTION	TOWN SHIP	RANGE	BASE AND MERIDIAN
1	N 399,744' E 1,714,592'	2	SE ¼ of NW ¼	32	T11N	R10W	MOB&M
2	N 399,517' E 1,715,297'	2	SE ¼ of NW ¼	32	T11N	R10W	MOB&M
			¼ of ¼				
			¼ of ¼				

See Attachment No. 1

c. Name of the post office most often used by those living near the proposed point(s) of diversion:

CLOVERDALE

6. WATER AVAILABILITY

- a. Have you attached a water availability analysis for this project? ☒ YES ☒ NO

If NO, provide sufficient information to demonstrate that there is reasonable likelihood that unappropriated water is available for the proposed appropriation:

THE 2 RESERVOIRS HAVE EXISTED FOR WELL OVER 25 YEARS & FULL TO OVERFLOWING WITH THE FIRST RAINS OF THE SEASON. #2 HAS PROVIDED BOTH DOMESTIC & LIVESTOCK (2 HORSES) WATER SUPPLY. THE #2 POND NEVER DRIES UP & WE BELIEVE IS FED BY A SPRING.

See Attachment No. 1

- b. Is your project located on a stream system declared to be fully appropriated by the State Water Resources Control Board during your proposed season of diversion? ☐ YES ☒ NO

- c. In an average year, does the stream dry up at any point downstream of your project? ☒ YES ☐ NO If YES, during which months? ☐ Jan ☐ Feb ☐ Mar ☐ Apr ☒ May ☒ Jun ☒ Jul ☒ Aug ☒ Sep ☒ Oct ☐ Nov ☐ Dec

- d. What alternate sources of water are available if a portion of your requested diversion season must be excluded because water is not available for appropriation? (e.g., percolating groundwater, purchased water, etc.)

THERE IS A WELL THAT GOES DRY IN THE SUMMER MONTHS OTHER THAN THAT - PURCHASED WATER.

See Attachment No. 1

7. PLACE OF USE

a.

USE IS WITHIN (40-acre subdivision)	SECTION*	TOWNSHIP	RANGE	BASE & MERIDIAN	IF IRRIGATED	
					Acres	Presently cultivated?
SE ¼ of NW ¼	32	T11N	R10W	MOB&M	9 (GRAPE)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
SE ¼ of NW ¼	32	T11N	R10W	MOB&M	0.5 YARD	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
¼ of ¼						<input type="checkbox"/> YES <input type="checkbox"/> NO
¼ of ¼						<input type="checkbox"/> YES <input type="checkbox"/> NO
¼ of ¼						<input type="checkbox"/> YES <input type="checkbox"/> NO
¼ of ¼						<input type="checkbox"/> YES <input type="checkbox"/> NO
¼ of ¼						<input type="checkbox"/> YES <input type="checkbox"/> NO
¼ of ¼						<input type="checkbox"/> YES <input type="checkbox"/> NO
¼ of ¼						<input type="checkbox"/> YES <input type="checkbox"/> NO
Total:					9.5	

*Please indicate if section is projected with a "(P)" following the section number.

See Attachment No. 1

- b. Please provide the Assessor's Parcel Number(s) for the place of use: 117-010-030

8. PROJECT SCHEDULE

- a. Project is:

- ☐ proposed. Year construction will begin: _____
☐ partially complete. Extent of completion: _____

☒ complete. Year completed: UNKNOWN (PRIOR TO 1980 AT LEAST - AERIAL PHOTO)

- b. Year of first use: UNKNOWN Year water will be used to the full extent intended: 2016

SECTION B: MISCELLANEOUS DIVERSION INFORMATION

1. JUSTIFICATION OF AMOUNTS REQUESTED

a. ☒ **IRRIGATION:** Maximum area to be irrigated in any one year: 9.0 acres.

CROP	ACRES	METHOD OF IRRIGATION (sprinklers, flooding, etc.)	WATER USE (Acre-feet/Yr.)	SEASON OF WATER USE	
				Beginning date (month & day)	Ending date (month & day)
GRAPES	9.0	DRIP IRRIGATION	5,523	MAY 15	OCT. 15

☐ See Attachment No. _____

b. ☒ **DOMESTIC:** Number of residences to be served: 1 Separately owned? ☐ YES ☒ NO
 Number of people to be served: 2 Estimated daily use per person is: 75 gallons per day
 Area of domestic lawns and gardens: 20,000 square feet
 Incidental domestic uses: 2 DOGS, 5 pet GYATS
(dust control area, number and kind of domestic animals, etc.)

7-1707
JDM. ☒ **STOCKWATERING:** Kind of stock: GOATS Maximum number: 5
 Describe type of operation: PETS
(feedlot, dairy, range, etc.)

d. ☐ **RECREATIONAL:** Type of recreation: ☐ Fishing ☐ Swimming ☐ Boating ☐ Other _____

e. ☐ **MUNICIPAL:**

POPULATION List for 5-year periods until use is completed		MAXIMUM MONTH		ANNUAL USE		
Period	Population	Average daily use (gallons per capita)	Rate of diversion (cfs)	Average daily use (gallons per capita)	Acre-foot (per capita)	Total (acre-feet)
Present						

☐ See Attachment No. _____

Month of maximum use during year: _____ Month of minimum use during year: _____

f. ☐ **HEAT CONTROL:** Area to be heat controlled: _____ net acres
 Type of crops protected: _____
 Rate at which water is applied to use: _____ gpm per acre
 Heat protection season will begin _____ and end _____
(month & day) (month & day)

g. ☐ **FROST PROTECTION:** Area to be frost protected: _____ net acres
 Type of crops protected: _____
 Rate at which water is applied to use: _____ gpm per acre
 The frost protection season will begin _____ and end _____
(month & day) (month & day)

h. ☐ **INDUSTRIAL:** Type of industry: _____
 Basis for determination of amount of water needed: _____

i. ☐ **MINING:** Name of the claim: _____ ☐ Patented ☐ Unpatented
 Nature of the mine: _____ Mineral(s) to be mined: _____
 Type of milling or processing: _____
 After use, the water will be discharged into _____ (watercourse)
 in _____ 1/4 of _____ 1/4 of Section _____, T _____, R _____, _____ B. & M.

j. ☐ **POWER:** Total head to be utilized: _____ feet
 Maximum flow through the penstock: _____ cfs
 Maximum theoretical horsepower capable of being generated by the works (cfs x fall ÷ 8.8): _____
 Electrical capacity (hp x 0.746 x efficiency): _____ kilowatts at: _____ % efficiency
 After use, the water will be discharged into _____ (watercourse)
 in _____ 1/4 of _____ 1/4 of Section _____, T _____, R _____, _____ B. & M. FERC No.: _____

k. ☐ **FISH AND WILDLIFE PRESERVATION AND/OR ENHANCEMENT:** List specific species and habitat type that will be preserved or enhanced in Item 7a of Section C.

l. ☐ **OTHER:** Describe use: _____
 Basis for determination of amount of water needed: _____

2. DIVERSION AND DISTRIBUTION METHOD

- a. Diversion will be by gravity by means of: DAM
(dam, pipe in unobstructed channel, pipe through dam, siphon, weir, gate, etc.)
- b. Diversion will be by pumping from: RESERVOIR #2 WITH PUMP LOCATED IN BOTTOM OF POND
(sump, offset well, channel, reservoir, etc)
- Pump discharge rate: 10 GAL/MIN ☐ cfs or ☐ gpd Horsepower: 0.5 Pump Efficiency: 74%

c. Conduit from diversion point to first lateral or to offstream storage reservoir:

CONDUIT (pipe or channel)	MATERIAL (type of pipe or channel lining; indicate if pipe is buried or not)	CROSS-SECTION (pipe diameter, or ditch depth and top and bottom width) (inches or feet)	LENGTH (feet)	TOTAL LIFT OR FALL		CAPACITY (cfs, gpd or gpm)
				feet	+ or -	

☐ See Attachment No. _____

d. Storage reservoirs: (For underground storage, complete and attach form APP-UGSTOR)

RESERVOIR NAME OR NUMBER	DAM				RESERVOIR		
	Vertical height from downstream toe of slope to spillway level (feet)	Construction material	Length (feet)	Freeboard: dam height above spillway crest (feet)	Surface area when full (acres)	Capacity (acre-feet)	Maximum water depth (feet)
<u>1</u>	<u>10.3'</u>	<u>EARTH</u>	<u>70'</u>	<u>2.5'</u>	<u>0.2</u>	<u>1.40</u>	<u>10.3'</u>
<u>2</u>	<u>21.8'</u>	<u>EARTH</u>	<u>100'</u>	<u>3.0'</u>	<u>1.1</u>	<u>11.55</u>	<u>15'</u>

☐ See Attachment No. _____

e. Outlet pipe: Complete for storage reservoirs having a capacity of 10 acre-feet or more.

RESERVOIR NAME OR NUMBER	OUTLET PIPE				
	Diameter (inches)	Length (feet)	Fall: vertical distance between entrance and exit of outlet pipe (feet)	Head: vertical distance from spill- way to entrance of outlet pipe (feet)	Dead Storage: storage below entrance of outlet pipe (acre-feet)
<u>1</u>	<u>NONE</u>	<u>-</u>	<u>OVER FLOW SPILLWAY (EXISTING)</u>		
<u>2</u>	<u>NONE</u>	<u>-</u>	<u>OVER FLOW SPILLWAY (EXISTING)</u>		

☐ See Attachment No. _____

- f. If water will be stored and the reservoir is not at the point of diversion, the maximum rate of diversion to off-stream storage will be _____ cfs. Diversion to offstream storage will be made by: ☐ Pumping ☐ Gravity

3. CONSERVATION AND MONITORING

- a. What methods will you use to conserve water? Explain. TIMED DRIP IRRIGATION PIPED DIRECT TO PLANTS. TIMED SPRINKLER SYSTEM FOR GARD AREA TO RUN @ NIGHT. CAREFUL MONITORING OF NEED AND SUPPLY.
- b. How will you monitor your diversion to be sure you are within the limits of your water right and you are not wasting water? ☐ Weir ☐ Meter ☒ Periodic sampling ☐ Other (describe) IRRIGATION SYSTEM IS NOT DESIGNED YET, SO MONITORING EQUIPMENT IS STILL UNKNOWN.

4. RIGHT OF ACCESS

- a. Does the applicant own all the land where the water will be diverted, transported and used? ☒ YES ☐ NO
If NO, I ☐ do ☐ do not have a recorded easement or written authorization allowing me access.
- b. List the names and mailing addresses of all affected landowners and state what steps are being taken to obtain access:

☐ See Attachment No. _____

5. EXISTING WATER RIGHTS AND RELATED FILINGS

- a. Do you claim an existing right for the use of all or part of the water sought by this application? ☐ YES ☒ NO
If YES, please specify: ☐ Riparian ☐ Pre-1914 ☐ Registration ☐ Permit ☐ License
☐ Percolating groundwater ☐ Adjudicated ☐ Other (specify) _____
- b. For each existing right claimed, state the source, year of first use, purpose, season and location of the point of diversion (to within quarter-quarter section). Include number of registration, permit, license, or statement of

water diversion and use, if applicable. _____

- c. List any related applications, registrations, permits, or licenses located in the proposed place of use or that utilize the same point(s) of diversion. _____

☐ See Attachment No. _____

6. OTHER SOURCES OF WATER

Are you presently using, or do you intend to use, purchased water or water supplied by contract in connection with this project? ☐ Yes ☒ No If yes, please explain: _____

7. MAP REQUIREMENTS

The Division cannot process your application without accurate information showing the source of water and location of water use. You must include a map with this application form that clearly indicates the township, range, section and quarter/quarter section of (1) the proposed points of diversion and (2) the place of use. A copy of a U.S.G.S. quadrangle/topographic map of your project area is preferred, and can be obtained from sporting goods stores or through the Internet at <http://topomaps.usgs.gov>. A certified engineering map is required when (1) appropriating more than three cfs by direct diversion, (2) constructing a dam which will be under the jurisdiction of the Division of Safety of Dams, (3) creating a reservoir with a surface area in excess of ten acres or (4) appropriating more than 1000 acre-feet per annum by underground storage. See the instruction booklet for more information.

☒ See Attachment No. 1

SECTION C: ENVIRONMENTAL INFORMATION

Note: Before a water right permit may be issued for your project, the State Water Resources Control Board (SWRCB) must consider the information contained in an environmental document prepared in compliance with the California Environmental Quality Act (CEQA). This form is not a CEQA document. If a CEQA document has not yet been prepared for your project, a determination must be made of who is responsible for its preparation. If the SWRCB is determined to be responsible for preparing the CEQA document, the applicant will be required to pay all costs associated with the environmental evaluation and preparation of the required documents. Please answer the following questions to the best of your ability and submit with this application any studies that have been conducted regarding the environmental evaluation of your project.

1. COUNTY PERMITS

- a. Contact your county planning or public works department and provide the following information:

Person contacted: UNKNOWN - COUNTY OFFICE STAFF Date of contact: JULY 2005
Department: _____ Telephone: (____) _____
County Zoning Designation: _____

Are any county permits required for your project? ☐ YES ☒ NO If YES, check appropriate box below:

☐ Grading permit ☐ Use permit ☐ Watercourse ☐ Obstruction permit ☐ Change of zoning

☐ General plan change ☒ Other (explain): BOTH DAMS WERE CONSTRUCTED PRIOR TO DATE OF EARLIEST RECORDS MAINTAINED BY COUNTY.

- b. Have you obtained any of the required permits described above? ☐ YES ☒ NO DAMS EXISTED WHEN PROPERTY WAS PURCHASED.
If YES, provide a complete copy of each permit obtained.

☐ See Attachment No. _____

2. STATE/FEDERAL PERMITS AND REQUIREMENTS

- a. Check any additional state or federal permits required for your project:

☐ Federal Energy Regulatory Commission ☐ U.S. Forest Service ☐ U.S. Bureau of Land Management
☐ U.S. Corps of Engineers ☐ U.S. Natural Res. Conservation Service ☐ Calif. Dept. of Fish and Game
☐ State Lands Commission ☐ Calif. Dept. of Water Resources (Div. of Safety of Dams)
☐ Calif. Coastal Commission ☐ State Reclamation Board ☐ Other (specify) _____

- b. For each agency from which a permit is required, provide the following information:

AGENCY	PERMIT TYPE	PERSON(S) CONTACTED	CONTACT DATE	TELEPHONE NO.

☐ See Attachment No. _____

- c. Does your proposed project involve any construction or grading-related activity that has significantly altered or would significantly alter the bed, bank, or riparian habitat of any stream or lake? ☐ YES ☒ NO
If YES, explain: _____

☐ See Attachment No. _____

- d. Have you contacted the California Department of Fish and Game concerning your project? ☐ YES ☒ NO
If YES, name and telephone number of contact: _____

3. ENVIRONMENTAL DOCUMENTS

- a. Has any California public agency prepared an environmental document for your project? ☐ YES ☒ NO
c. If YES, submit a copy of the latest environmental document(s) prepared, including a copy of the notice of determination adopted by the California public agency. Public agency: _____

- d. If NO, check the appropriate box and explain below, if necessary:

☐ The applicant is a California public agency and will be preparing the environmental document.*

☒ I expect that the SWRCB will be preparing the environmental document.** IF REQUIRED.

☐ I expect that a California public agency other than the State Water Resources Control Board will be preparing the environmental document.* Public agency: _____

☐ See Attachment No. _____

* Note: When completed, submit a copy of the final environmental document (including notice of determination) or notice of exemption to the SWRCB, Division of Water Rights. Processing of your application cannot proceed until these documents are submitted.

** Note: CEQA requires that the SWRCB, as Lead Agency, prepare the environmental document. The information contained in the environmental document must be developed by the applicant and at the applicant's expense under the direction of the SWRCB, Division of Water Rights.

4. WASTE/WASTEWATER

- a. Will your project, during construction or operation, (1) generate waste or wastewater containing such things as sewage, industrial chemicals, metals, or agricultural chemicals, or (2) cause erosion, turbidity or sedimentation? ☐ YES ☒ NO

If YES, or you are unsure of your answer, explain below and contact your local Regional Water Quality Control Board for the following information (See instruction booklet for address and telephone no.):

☐ See Attachment No. _____

- b. Will a waste discharge permit be required for your project? ☐ YES ☒ NO

Person contacted: _____ Date of contact: _____

- c. What method of treatment and disposal will be used? None - no waste water will be generated

☐ See Attachment No. _____

5. ARCHEOLOGY

- a. Have any archeological reports been prepared on this project? ☐ YES ☒ NO
b. Will you be preparing an archeological report to satisfy another public agency? ☐ YES ☒ NO
c. Do you know of any archeological or historic sites located within the general project area? ☐ YES ☒ NO
If YES, explain: _____

☐ See Attachment No. _____

6. ENVIRONMENTAL SETTING

Attach three complete sets of color photographs, clearly dated and labeled, showing the vegetation that exists at the following three locations:

☒ Along the stream channel immediately downstream from the proposed point(s) of diversion.

☒ Along the stream channel immediately upstream from the proposed point(s) of diversion.

☒ At the place(s) where the water is to be used.

☒ See Attachment No. 2 THROUGH 9


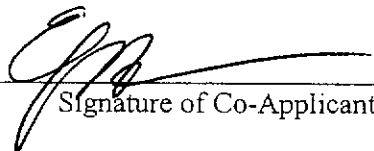
SECTION D: SUBMITTAL FEES

Calculate your application filing fee using the "Water Right Fee Schedule Summary" that was enclosed in the application packet. The "Water Right Fee Schedule Summary" can also be viewed at the Division of Water Rights' website (www.waterrights.ca.gov).

~~\$1,045.00~~
A check for the application filing fee, payable to the "Division of Water Rights" and an \$850 check for the Streamflow Protection Standards review fee [Pub. Resources Code § 10005(a)], payable to the "California Department of Fish and Game," must accompany this application. All applicable fees are required at the time of filing. Your application will be returned to you if it is not accompanied by all required fees.

SECTION E: DECLARATION AND SIGNATURE

I declare under penalty of perjury that all information provided is true and correct to the best of my knowledge and belief. I authorize my agent, if I have designated one above, to act on my behalf regarding this water right application.

 _____ Signature of Applicant	<u>OWNER</u> _____ Title or Relationship	<u>4-24-06</u> _____ Date
 _____ Signature of Co-Applicant (if any)	<u>owner</u> _____ Title or Relationship	<u>04/24/06</u> _____ Date



"APPLICATION TO APPROPRIATE WATER" CHECKLIST

Before you submit your application, be sure to:

- Answer each question completely in Sections A, B, and C.
- Number and include all necessary attachments.
- Include a legible map that meets the requirements discussed in the instruction booklet (Item B6).
- Include the Water Availability Analysis or sufficient information to demonstrate that there is reasonable likelihood that unappropriated water is available for the proposed appropriation (Item A6).
- Include three complete sets of color photographs of the project site (Item C6).
- Enclose a check for the required fee, payable to the Division of Water Rights, as specified in Section D. \$1,045.00
- Enclose a \$850 check for the Streamflow Protection Standards review fee, payable to the Department of Fish and Game, as specified in Section D.
- Sign and date the application in Section E.

Send the original and one copy of the entire application to:

State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95812-2000

STATE WATER RESOURCES
CONTROL BOARD

2005 JUL 31 PM 12:38

DIV. OF WATER RIGHTS
SACRAMENTO

Water Availability Assessment

Unnamed Stream Tributary to Barrelli Creek Thence Russian River,
SE ¼ of NW ¼, Projected Section 32, T11N, R10W, MDB&M
Sonoma County near Asti

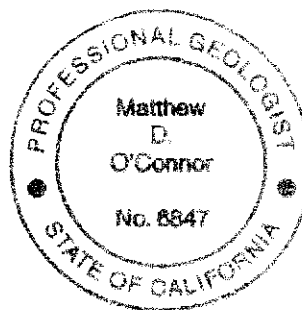
Prepared for:

Brent E. and Elizabeth S. Nelson
65 Idora Ave
San Francisco, California 94127

Prepared by:



Matthew O'Connor, PhD, PG #6847
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O'Connor Environmental, Inc.
P.O. Box 794
Healdsburg, California 95448



June 26, 2006

COPY

Introduction

As is required by section 1260(k) of the California Water Code, we conducted a hydrologic assessment of the watershed draining to the reservoirs on your property in the Russian River watershed west of Asti in Sonoma County. The purpose of the assessment was to evaluate the availability of unappropriated water. Following is a summary of this assessment. Attached is a copy of documentation provided by the California Department of Water Resources describing the location and footprint of the reservoir facilities on your property.

Methods

Water availability was estimated as per "Suggested Methodology for a 1260(K) Analysis"(Appendix). The following equation was used:

$$Q_E = Q_I - Q_O$$

where Q_E is estimated available surface water, Q_I is estimated runoff, and Q_O is maximum reservoir storage. The value of Q_I is estimated as the product $A \cdot C \cdot P$ where A is the area of the watershed in acres, C is a runoff coefficient determined from watershed characteristics, and P is average annual precipitation in feet.

Three separate drainage basins were delineated using USGS topographic maps to analyze all related watersheds associated with the property (see Figure 1). Drainage A consists of the approximate 22.5 acre area draining into the main reservoir on the Nelson property (node A). Drainage B, which has the second largest contributing area, contains Drainage A and extends south encompassing approximately 315 acres. The Gallo Vineyards Inc reservoir is located to the east just above Node B. The largest drainage (738 acres), Drainage C, contains both Drainages A and B and encompasses the headwaters of Barrelli Creek about 2 miles to the south of the property. Node C is located at the confluence of Barrelli Creek with the unnamed creek on the Nelson property.

To determine the runoff coefficient (C) four watershed characteristics were considered: Topography, Soil Saturation, Vegetal Cover and Surface water (see "Attachment for 1260(k) Analysis Runoff Coefficient "C" for Undeveloped Areas" in the Appendix). Among these factors, soil saturation was the most variable between the different drainages. Each drainage includes a number of soil types with differing characteristics. Soils information was found using the Sonoma County Soil Survey (Miller 1972). Changes in soil type as well as slope were noted between the upper and lower reaches of the two larger drainages. This prompted us to divide the upper and lower reaches and assign appropriate Soil Saturation and Topography values. Average conditions were determined using weighted percents according to the area of each drainage. The remaining characteristics, Vegetal Cover and Surface water, were found to be consistent throughout all of the watersheds. This was determined with the help of USGS aerial photographs found on TerraServer (<http://terraserver.microsoft.com>) and in the Sonoma County Soil Survey Sheet 20 (Miller 1972).

The average annual precipitation value, 40.67 inches/year (3.4 feet/year) was taken from yearly precipitation data collected at the Russian River Near Healdsburg gauging station (CDWR 2006).

According to the California Division of Water Rights Query tool (WRMIS) two water rights applications exist currently for locations within the watershed. The smaller of the two is for Luigi P Muzzin (application # A029372); maximum storage is 13 acre feet during a diversion season from 11/15 through 4/15. Initially, this diversion was believed to be a previous application located on the Nelson property and was included in the water availability calculations. However, according to the Nonpermitted Reservoir Inspection Map (Appendix) as well as the property owner Brent Nelson, the mapped location on the Water Rights website is erroneous. The correct location is over the ridge immediately to the northwest of the Nelson property (Pers. Comm. Nelson, 2006). The Muzzin diversion therefore has no affect on any of the drainages investigated in this study and can be ignored in the calculations. The water rights for Gallo Vineyards Inc. (application # A029616) includes two locations for its total maximum storage of 400 acre feet with a diversion season from 10/15 to 5/15. One Gallo reservoir is located on a tributary of Barrelli Creek within Drainages B and C and the other is located outside of the Barrelli Creek study area. It is not known if water is diverted from Barrelli Creek to the reservoir located outside of the drainage. The storage capacity for each reservoir is not known. We used 400 acre feet as the maximum storage for the Gallo Vineyards Inc. application for purposes of this assessment.

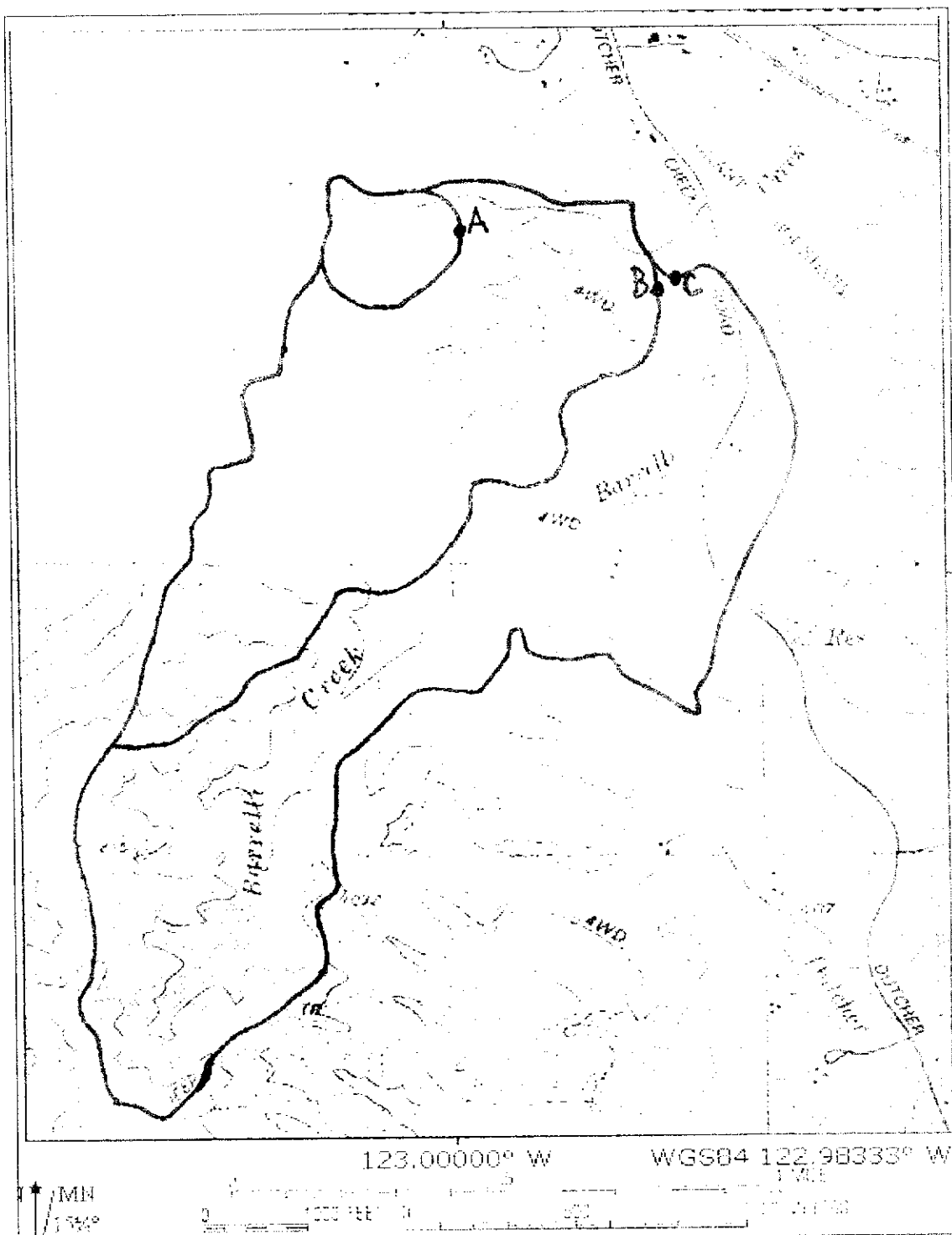


Figure 1. Map of Study Area west of Asti, Sonoma County showing drainage basins A, B and C. Drainage nodes (dots) for each basin labeled accordingly.

Results

Calculations for estimated inflow to each drainage resulted as follows:

Drainage A: $Q_I = 31$ Acre Feet/Year

Drainage B: $Q_I = 460$ Acre Feet/Year

Drainage C: $Q_I = 1074$ Acre Feet/Year

There are no other permit applications on record in Drainages A, hence $Q_E = Q_I = 31$ ac-ft for this drainage. The estimated available surface water (Q_E) for Drainage B is 60 ac-ft ($Q_I = 460$ ac-ft less the Gallo Vineyard Inc. water right application A029616, with maximum storage (Q_O) of 400 acre feet). The estimated available surface water (Q_E) for Drainage C is estimated to be 674 acre feet/year, taking into account the Gallo Vineyard Inc. water right application A029616, with maximum storage (Q_O) of 400 acre feet.

Previous analyses by O'Connor Environmental, Inc. (OEI) of annual stream flow and annual precipitation for central Russian River tributaries (Big Sulphur Creek, USGS Gauge #114 63170 and Franz Creek, USGS Gauge #11463940) with terrain, climate, vegetation and soils similar to Barrelli Creek estimated a higher runoff coefficient (C), (0.55 versus 0.435) using the DWR method. In the OEI study, USGS streamflow records and annual rainfall records were analyzed to estimate mean annual runoff per unit watershed area. Alternative calculations of Q_I using the runoff coefficient determined from gauge records by OEI were made for comparison. Results for these calculations were:

Drainage A: $Q_I = 42$ Acre Feet/Year

Drainage B: $Q_I = 587$ Acre Feet/Year

Drainage C: $Q_I = 1357$ Acre Feet/Year

The estimated available surface water (Q_E) for Drainages B and C increased to 187 and 957 acre feet per year respectively

Conclusions

The results of the calculations for estimated available surface water using the rational runoff method show $Q_E = 31$ acre feet per year is available for the 22.5 acre contributing area for drainage node A. If the higher runoff coefficient determined by OEI is used, an even greater supply of 42 acre feet per year would be available.

References

California Department of Water Resources,
http://cdec.water.ca.gov/cgi-progs/staMeta?station_id=HEA.

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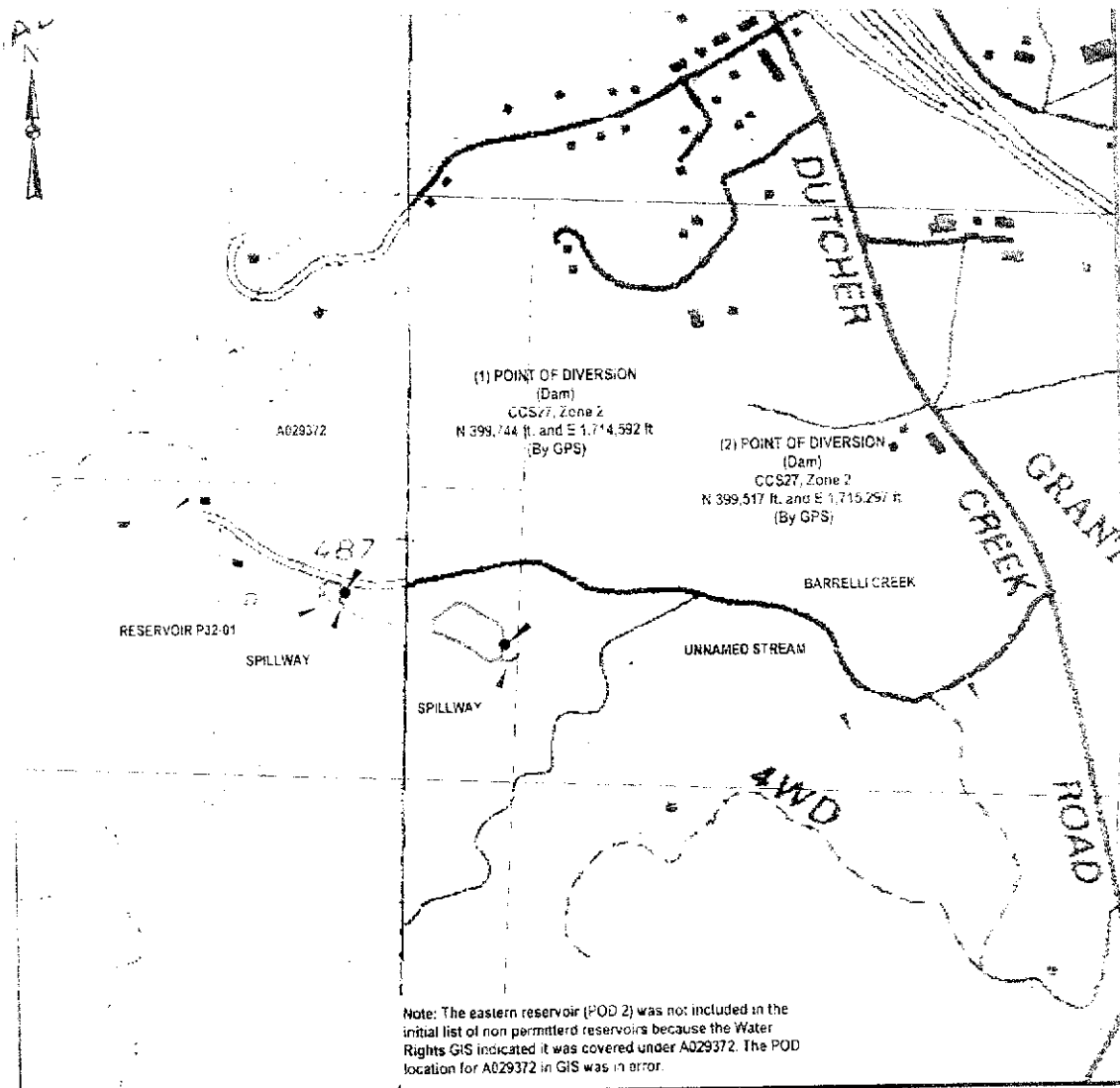
APPENDIX

SWRCB Nonpermitted Reservoir Inspection Map

Suggested Methodology for a 1260(K) Analysis

and

Big Sulphur and Franz Creek Runoff Coefficient Calculations



OWNERS BRENT E. and ELIZABETH S. NELSON		STATE OF CALIFORNIA CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY	
SOURCE UNNAMED STREAM TRIBUTARY TO BARRELLI CREEK THENCE RUSSIAN RIVER		STATE WATER RESOURCES CONTROL BOARD DIVISION OF WATER RIGHTS	
POINTS OF DIVERSION		NONPERMITTED RESERVOIR INSPECTION	
WITHIN SE 1/4 OF NW 1/4 OF		(P32-01)	
PROJECTED SECTION 32, T11N, R10W, MDB&M			
COUNTY OF SONOMA			
DATE 09/01/05	DRAWN L. Lindsay	CHECKED	
BASIC PLAN CLOVERDALE and ASTI		SCALE 1:8,000	

ATTACHMENT
Item No. 6, Water Availability in Application to Appropriate Water

SUGGESTED METHODOLOGY FOR A 1260(K) ANALYSIS

The contents of an application to appropriate water are identified in section 1260 of the California Water Code. Eleven criteria are specified in the code, the last of which, section 1260(k), requires a demonstration that there is a reasonable likelihood that unappropriated water is available for the proposed appropriation. Historically, the Division of Water Rights (Division) accepted and processed applications with only minimal information regarding the availability of water, such as observations of seasonal flow conditions. Recent changes in Division practices now require the applicant to perform a more rigorous evaluation of the potential water availability to address the requirements of Water Code, section 1260(k).

Any applicant seeking to appropriate water has two alternatives for addressing the requirements of Water Code section 1260(k): 1) contract with a consultant to perform the analysis, or 2) perform an in-house analysis. An applicant may use the following procedure for an in-house analysis.

The procedure for an in-house, 1260(k) analysis is a simple water balance methodology where available surface water can be estimated by evaluating the inflow to the watershed, less the outflow from the watershed, or:

$$Q_E = Q_I - Q_O$$

Where:

- E = Estimated reasonable likelihood that unappropriated water is available for the proposed appropriation;
- I = Surface water flow into the watershed considering the area, characteristics, and precipitation in the watershed; and
- O = Water outflow from the watershed as defined by existing water rights on record at the Division.

Inflow to the watershed may be estimated using the following equation:

$$Q_I = A C P$$

Where:

- Q_I = Surface water flow into the project watershed in acre-feet per year;
- A = Area of the watershed in acres;
- C = Runoff coefficient (no units) as taken from the attached table; and
- P = Average annual precipitation in feet per year.

The surface area of the watershed, where the project is proposed or located, should be determined using a U. S. Geologic Survey (USGS) topographic map. The applicant should consider upstream and downstream tributaries to the surface water source for the project when evaluating the area of the watershed. USGS topographic maps are available for viewing at the Division.

A runoff coefficient can be assigned to the project watershed based the type of watershed characteristics (topography, soil saturation, vegetal cover, and surface water), each of which has been assigned a range of values. The range of values is subdivided based on watershed type, as provided in the table. The selected values for each watershed characteristic must be summed to determine the runoff coefficient for the project watershed.

The precipitation for the project watershed should be determined using average annual rainfall as taken from an appropriate gauging station(s). Rainfall data may be obtained off the Internet at: http://cdec.water.ca.gov/snow_rain.html. Precipitation data is typically estimated using data from the gauging station closest to the project area.

Outflow to the watershed may be quantified by determining the flow of water previously dedicated to or taken by existing water right holders. This may be accomplished in one of three ways:

1. Identify the existing downstream water right holders by the application number on USGS topographic maps at the Division. Determine the quantity assigned to each application by viewing the case files of those applications identified on the maps;
2. Identify the existing downstream water right holders by the application number and the quantity of water taken by these applicants using the Division's on-line database through the Water Rights Query Tool, which can be found at: <http://www.waterrights.ca.gov/>; or
3. Make a hydro-report request of Division staff to determine the number and the amount of water taken by existing water right holders. This service costs \$250 per hour, and the typical hydro-report usually takes one hour to prepare. A hydro-report request form can be obtained by contacting Cathy Nease at (916) 322-8465.

The value derived from the watershed inflow/outflow calculation, as described above, provides an estimate of the amount of water potentially available for appropriation. If the estimated available water (Q_E) is a positive value, the applicant should assume there is a reasonable likelihood that unappropriated water is available for appropriation, and the applicant's in-house analysis should be included in the application as an amendment for Item No. 5. If the estimated available water (Q_E) is a negative value, which suggests water is unavailable for appropriation, the applicant could revise the in-house analysis or could contact a consultant to perform the 1260(k) analysis.

Watershed Characteristics	Watershed Types			
	Extreme	High	Normal	Low
Topography	0.28 - 0.35 Steep, rugged terrain with average slopes above 30%	0.20 - 0.28 Hilly, with average slopes of 10 to 30%	0.14 - 0.20 Rolling with average slopes of 5 to 10%	0.08 - 0.14 Relatively flat land, with average slopes of 0 to 5%
Soil Saturation	0.12 - 0.16 No effective soil cover; either rock or thin soil mantle of negligible infiltration capacity	0.08 - 0.12 Slow uptake of water; clay or loam soil of low infiltration capacity; imperfectly or poorly drained	0.06 - 0.08 Normal; well-drained, high or medium-textured soils, sandy loams, silt and silty loams	0.04 - 0.06 High; deep sand or other soil that takes up water readily, very high level drained soils
Vegetal Cover	0.12 - 0.16 No effective plant cover, bare, or very sparse cover	0.08 - 0.12 Poor to fair; clean cultivation crops, or poor natural cover, less than 20% of drainage area over good cover	0.06 - 0.08 Fair to good; about 50% of area in grassland or woodland, not more than 50% of area in cultivated crops	0.04 - 0.06 Good to excellent; about 80% of drainage area in grassland, woodland or with equivalent cover
Surface Water	0.10 - 0.12 Negligible surface depression few and shallow; drainage ways steep and small, no marshes	0.06 - 0.10 Low; very well defined system of drainage ways; no ponds or marshes	0.06 - 0.08 Normal; considerable surface depression storage, lakes and pond marshes	0.04 - 0.06 High; surface storage high; drainage system not sharply defined, large floodplain storage or large number of pond marshes

The runoff coefficient "C" for a project in an undeveloped area may be identified as the sum of values given to specific characteristics of the watershed. To determine "C," select a value from the range of values assigned to the watershed type for each characteristic, and add the selected values.

Example: The characteristics of the watershed consist of:

- 1) Hilly terrain with average slope of 15%, (topography) = 0.25
 - 2) Well-drained gravelly loams, (soil saturation) = 0.11
 - 3) Planted with grapes, and (vegetal cover) = 0.07
 - 4) Low, well-defined drainage (surface water) = 0.09
- Total = 0.52

The runoff coefficient for the example watershed is 0.52.

Source: California Department of Transportation, *Highway Design Manual*, July 1, 1995, pp. 810-816.

Big Sulphur Drainage area: 7392 Ac MAP: 70 in/yr 31536000 sec/yr
321995520 ft2 5.83 ft

year	MAQ (ft/s)	ft3/yr	eq. Depth ft	rain CI (in)	runoff ratio: adjusted rain feet	0.713 MAP - based ratio	
1981	40.8	1286668800	4.00	52.89	102.2	8.52	0.47
1982	55.8	1759708800	5.47	52.01	100.9	8.41	0.65
1983	102	3216672000	9.99	93.77	181.9	15.16	0.66
1984	20.5	646488000	2.01	28.76	55.8	4.65	0.43
1985	14.2	447811200	1.39	23.86	46.3	3.86	0.36
1986	68	2081376000	6.46	47.58	92.3	7.69	0.84
1987	30.5	961848000	2.99	40.56	78.7	6.56	0.46
1988	17	536112000	1.66	23.33	45.3	3.77	0.44
1989	24.1	760017600	2.36	26.09	50.8	4.22	0.56
1990	18.2	573965200	1.78	20.23	39.2	3.27	0.55
1991	27.4	864088400	2.68	5.8	11.3	0.94	2.89
1992	34	1072224000	3.33	17.93	34.8	2.90	1.15
1993	56.1	1769168000	5.49	44.78	86.9	7.24	0.76
1994	13	409668000	1.27	31.5	61.1	5.09	0.25
1995	104	3279744000	10.19	72.52	140.7	11.72	0.87
1996	70.7	2229596200	6.92	60.01	116.4	9.70	0.71
1997	31.9	1006988400	3.12	37.08	71.9	5.99	0.52
1998	59	1860624000	5.78	48.06	93.2	7.77	0.74
1999	36.2	1141603200	3.55	32.72	63.5	5.29	0.67
2000	38.6	1217289600	3.78	35.44	68.8	5.73	0.66
2001	32.4	1021766400	3.17	49.33	95.7	7.98	0.40
Average			4.18			6.50	0.579 ratio

Franz Creek Drainage area: 9720 Ac MAP: 45 in/yr average ratio: -0.597
423403200 ft2 3.75 ft

Year	MAQ (ft/s)	ft3/yr	eq. Depth ft	rain Ca	runoff ratio: adjusted rain feet	0.481 MAP - based ratio	
1964	18.5	583416000	1.38	35.77	40.4	3.37	0.41
1965	22.6	712713600	1.68	29.8	33.7	2.81	0.60
1966	26.5	835704000	1.97	31.32	35.4	2.95	0.67
1967	29.3	924004800	2.18	41.75	47.2	3.93	0.56
Average			1.80			3.26	0.558

MAP "lyr ft
Cloverdale 36 3
Callistoga 40 3.33

0.55

5/16/04